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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/783,227

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Hidenori Taga

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CHRISTIE, PARKER & HALE, LLP
PO BOX 7068
PASADENA, CA 91109-7068

EXAMINER

KIM, DAVID S

ART UNIT

PAPER NUMBER

2633

DATE MAILED: 07/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

10/783,227

Applicant(s)

TAGA ET AL.

Examiner

David S. Kim

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 December 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 and 22-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 and 22-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Specification

1. Applicant's compliance with the objections to the specification in the previous Office Action (mailed on 04 October 2004) is noted and appreciated. Applicant responded by submitting a substitute specification and a compare copy of the substitute specification, incorporating various corrections.

However, the disclosure is still objected to because of the following informalities:

In the substitute specification, p. 1, l. 7-8, "This application is a Continuation of U.S. Application No. 10/460, 895" is used where -- This application is a **Divisional** of U.S. Application No. 10/460, 895 -- may be intended (emphasis Examiner's).

In the substitute specification, p. 31, the content of the abstract is not directed to the invention claimed in the instant application. Rather, it appears that the content of the abstract is directed to the invention of related U.S. Application No. 10/784,048, now U.S. Patent No. 6,856,771.

Appropriate correction is required.

Claim Objections

2. Applicant's compliance with the objections to the claims in the previous Office Action (mailed on 04 October 2004) is noted and appreciated. Applicant responded by amending the claims to overcome the objections. Thus, the previous objections are withdrawn.

3. **Claim 25** is objected to because of the following informalities:

In claim 25, the "storing information" step is missing a semi-colon at the end of the step.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. **Claims 1-19** are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for

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a threshold controller for generating a discrimination threshold of/for the discriminator according to the amplitude of the extracted clock,

does not reasonably provide enablement for

a threshold controller for generating a discrimination threshold of/for the discriminator according to the amplitude **and the bit rate error** of the extracted clock (emphasis Examiner's).

The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims. In Applicant's specification about this threshold controller (substitute specification, p. 20-21), this threshold controller only employs the amplitude of the extracted clock to determine the discrimination threshold for the discriminator. The supporting portion of Applicant's specification (substitute specification, p. 20-21) does not mention a bit rate error.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Kiyonaga et al.

7. **Claims 20, 22-23, and 25** are rejected under 35 U.S.C. 102(b) as being anticipated by Kiyonaga et al. (U.S. Patent No. 5,652,767, hereinafter "Kiyonaga").

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Regarding claim 20, Kiyonaga discloses:

An optical receiving apparatus, comprising:

a photodetector (photo-diode 22_{n+1} in Fig. 16) for converting an optical signal input from an optical transmission line to an electrical signal;

a clock extractor (notice clock output from preamplifier 23_{n+1}, col. 15, l. 35-38) for extracting a clock from the electrical signal;

a threshold controller (circuit 88) programmed with information about clock amplitude versus threshold characteristics for determining a signal receiving discrimination threshold by collating an amplitude of the extracted clock from the clock extractor with the clock amplitude versus threshold characteristics (the average of the clock amplitude corresponds to the threshold voltage to limiter amplifier 24_{n+1}, col. 15, l. 36-41); and

a discriminator (limiter amplifier 24_{n+1}) for discriminating the electrical signal according to the signal receiving discrimination threshold determined by the threshold controller.

Regarding claim 22, Kiyonaga discloses:

The optical receiving apparatus of claim 20, further comprising a signal brancher (circuit node after preamplifier 23_{n+1} in Fig. 16) for branching the electrical signal from the photodetector to a first electrical signal component (circuit 88) and a second electrical signal component (limiter amplifier 24_{n+1}).

Regarding claim 23, Kiyonaga discloses:

The optical receiving apparatus of claim 22, wherein the signal brancher simultaneously (no delay is indicated in the circuit in Fig. 16) applies the electrical signal from the photodetector to the discriminator and the clock extractor.

Regarding claim 25, Kiyonaga discloses:

A method for optical reception, comprising:

converting optical signal input from an optical transmission line to an electrical signal (photo-diode 22_{n+1} in Fig. 16);

extracting a clock from the electrical signal (notice clock output from preamplifier 23_{n+1}, col. 15, l. 35-38);

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storing information about clock amplitude versus threshold characteristics (circuit 88 is designed to correspond the average of the clock amplitude to the threshold voltage to limiter amplifier 24_{n+1}, col. 15, l. 36-41);

determining a signal receiving discrimination threshold according to an amplitude of the clock by collating an amplitude of the extracted clock with clock amplitude versus threshold characteristics (the average of the clock amplitude corresponds to the threshold voltage to limiter amplifier 24_{n+1}, col. 15, l. 36-41); and

discriminating the electrical signal according to the determined signal receiving discrimination threshold (limiter amplifier 24_{n+1}).

Tomofuji et al.

8. **Claims 20 and 22** are rejected under 35 U.S.C. 102(e) as being anticipated by Tomofuji et al. (U.S. Patent No. 6,496,552 B2, hereinafter "Tomofuji").

Regarding claim 20, Tomofuji discloses:

An optical receiving apparatus, comprising:

a photodetector (optoelectric conversion circuit 1 in Fig. 19) for converting an optical signal input from an optical transmission line to an electrical signal;

a clock extractor (clock signal generator 34 in Fig. 15) for extracting a clock from the electrical signal;

a threshold controller (circuits 32-33 in Fig. 15) programmed with information about clock amplitude versus threshold characteristics for determining a signal receiving discrimination threshold by collating an amplitude of the extracted clock from the clock extractor with the clock amplitude versus threshold characteristics (Figs. 6A, 16-17, col. 16, l. 10 – col. 17, l. 46; maximum amplitude corresponds to 100% duty, which corresponds to reference level V_{ro} in Fig. 6A; lower amplitude corresponds to lower than 100% duty or higher than 100% duty, which corresponds to reference level smaller than V_{ro} or to reference level V_{ru} in Fig. 6A, respectively); and

a discriminator (circuit 31 in Fig. 15) for discriminating the electrical signal according to the signal receiving discrimination threshold determined by the threshold controller.

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Regarding claim 22, Tomofuji discloses:

The optical receiving apparatus of claim 20, further comprising a signal brancher (circuit node after equalizing amplifier 2 in Fig. 19) for branching the electrical signal from the photodetector to a first electrical signal component (timing circuit 3) and a second electrical signal component (discriminating circuit 4).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. **Claim 24** is rejected under 35 U.S.C. 103(a) as being unpatentable over Kiyonaga.

Regarding claim 24, Kiyonaga does not expressly disclose:

The optical receiving apparatus of claim 22, wherein the signal brancher selectively applies the electrical signal from the photodetector to the discriminator and the clock extractor.

However, selective application of signals is an extremely common practice in the art. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to arrange the signal brancher to selectively apply the electrical signal from the photodetector to the discriminator and the clock extractor. One of ordinary skill in the art would have been motivated to do this to choose when to receive signals or not. For example, if one would like to turn off the receiving device to save power or to

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cease communication, one would select to not apply the signal to components. Such selection could occur at any number of locations along the signal lines of Kiyonaga, including the signal brancher.

Response to Arguments

Claims 1-19

12. Applicant's arguments with respect to claims 1-19 have been fully considered but are moot in view of the new ground(s) of rejection under 35 U.S.C. 112, first paragraph. Applicant's amendments to claims 1-19 introduced limitations that are not supported by Applicant's specification.

Claims 20 and 22-25

13. Applicant's arguments with respect to claim 20 and 22-25 have been considered but are moot in view of the new ground(s) of rejection. Notice the newly applied references of Kiyonaga and Tomofuji.

Conclusion

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David S. Kim whose telephone number is 571-272-3033. The examiner can normally be reached on Mon.-Fri. 9 AM to 5 PM (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 571-272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DSK



JASON CHAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600